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**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

ASSISTANT SECRETARY AND COMMISSIONER  
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DATE: 06/23/92

TO:

CHERYL K. ZALESKY  
KILPATRICK & CODY  
3100 EQUITABLE BLDG.  
100 PEACHTREE ST.  
ATLANTA, GA 30303

**UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT**

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE U.S. PATENT AND TRADEMARK OFFICE ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT ASSIGNMENT PROCESSING SYSTEM. IF YOU SHOULD FIND ANY ERRORS, ON THIS NOTICE, PLEASE SEND A REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT BRANCH, NORTH TOWER BUILDING, SUITE 10C35, WASHINGTON, D.C. 20231

ASSIGNOR:

CHOI, WOO-BAEG

DOC DATE: 03/24/92

RECORDATION DATE: 04/10/92      NUMBER OF PAGES 004      REEL/FRAME 6128/0093

DIGEST :ASSIGNMENT OF ASSIGNORS INTEREST

ASSIGNEE:

EMORY UNIVERSITY  
A GA CORPORATION  
1380 S. OXFORD ROAD, ATLANTA, GA 30322

SERIAL NUMBER      7-831153      FILING DATE      02/12/92  
PATENT NUMBER           ISSUE DATE      00/00/00

DOCKET

BY:

DATE

LFR  
7/13/92

1



As named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

John S. Pratt	29,476
James L. Ewing, IV	30,630
Patrea L. Pabst	31,284
Cheryl K. Zalesky	33,052
Dean W. Russell	33,452
Jamie L. Greene	32,467

Send Correspondence to: Cheryl K. Zalesky, Esq.  
Kilpatrick & Cody  
100 Peachtree Street, Suite 3100  
Atlanta, Georgia 30303

Direct telephone calls to: Cheryl K. Zalesky (404)572-6439

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

---

Full name of sole or first inventor Dennis C. Liotta

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence 793 Post Road Way, Stone Mountain, Georgia 30088

Citizenship United States

Post Office Address Same as above

---

Full name of second joint inventor (if any) Raymond F. Schinazi

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence 1524 Regency Walk Drive, Decatur, Georgia 30033

Citizenship United States

Post Office Address Same as above

---

Full name of third joint inventor (if any) Woo-Baeg Choi

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence 7 Regal Court, North Brunswick, New Jersey 08902

Citizenship \_\_\_\_\_

Post Office Address Same as above

Full name of fourth joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of fifth joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of sixth joint inventor (if any) \_\_\_\_\_

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence \_\_\_\_\_

Citizenship \_\_\_\_\_

Post Office Address \_\_\_\_\_

# DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name:

I believe I am the original, first and sole inventor (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"Antiviral Activity and Resolution of 2-Hydroxymethyl-5-(5-Fluorocytosin-1-YL)-1,3-Oxathiolane"  
the specification of which (check one)

\_\_\_\_\_ is attached hereto  
☒ was filed on February 12, 1992  
as application Serial No. 07/831,153  
\_\_\_\_\_ and was amended on: \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Claimed
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	_____

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of the application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

continuation-in-part of U.S.S.N. 07/659,760 (Application Serial No.)	February 22, 1991 (Filing Date)	Pending Status (patented, pending, abandoned)
continuation-in-part of U.S.S.N. 07/736,089 (Application Serial No.)	July 26, 1991 (Filing Date)	Pending Status (patented, pending, abandoned)
continuation-in-part of U.S.S.N. 07/473,318 (Application Serial No.)	February 1, 1990 (Filing Date)	Pending Status

As named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

John S. Pratt	29,476
James L. Ewing, IV	30,630
Patrea L. Pabst	31,284
Jamie L. Greene	32,467
Cheryl K. Zalesky	33,052
Dean W. Russell	33,452

Send Correspondence to: Cheryl K. Zalesky, Esq.  
Kilpatrick & Cody  
100 Peachtree Street, Suite 3100  
Atlanta, Georgia 30303

Direct telephone calls to: Cheryl K. Zalesky, (404) 572-6439 or  
John S. Pratt (404) 572-6367

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00  
Full name of sole or first inventor Dennis C. Liotta  
Inventor's signature *Dennis C. Liotta* Date 4/2/92  
Residence 793 Post Road Way, Stone Mountain, Georgia 30088 GA  
Citizenship U.S.A.  
Post Office Address Same as above

Full name of second joint inventor (if any) Raymond F. Schinazi  
Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence 1524 Regency Walk Drive, Decatur, Georgia 30033  
Citizenship U.S.A.  
Post Office Address Same as above

As named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

John S. Pratt	29,476
James L. Ewing, IV	30,630
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Full name of sole or first inventor Dennis C. Liotta

Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence 793 Post Road Way, Stone Mountain, Georgia 30088

Citizenship U.S.A.

Post Office Address Same as above

Full name of second joint inventor (if any) <sup>2-00</sup> Raymond F. Schinazi

Inventor's signature Raymond F. Schinazi Date 3.24.92

Residence 1524 Regency Walk Drive, Decatur, Georgia 30033 GA

Citizenship U.S.A.

Post Office Address Same as above

3-00

Full name of third joint inventor (if any) Woo-Baeg Choi  
Inventor's signature *Woo Baeg Choi* Date 3/24/92  
Residence 7 Regal Court, North Brunswick, New Jersey 08902 NJ  
Citizenship Republic of Korea  
Post Office Address Same as above

Full name of fourth joint inventor (if any) \_\_\_\_\_  
Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_  
Citizenship \_\_\_\_\_  
Post Office Address \_\_\_\_\_

Full name of fifth joint inventor (if any) \_\_\_\_\_  
Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_  
Citizenship \_\_\_\_\_  
Post Office Address \_\_\_\_\_

Full name of sixth joint inventor (if any) \_\_\_\_\_  
Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_  
Residence \_\_\_\_\_  
Citizenship \_\_\_\_\_  
Post Office Address \_\_\_\_\_





20-581-A6

UNITED STATES PATENT AND TRADEMARK OFFICE  
Applicants: Dennis C. Liotta, et al.

Serial No.: 07/831,153

Attention: Application Branch

Filed: February 12, 1992

For: Antiviral Activity and Resolution of 2-Hydroxymethyl-5-(5-Fluorocytosin-1-yl)-1,3-Oxathiolane

Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

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finance  
(3) docs

FEE VALUE	
FURNISHED	
11 10955	
FEE	VALUE
581	60.00

APR 14 1992

APPLICATION DIVISION 402

TRANSMITTAL OF ASSIGNMENT AND  
DECLARATION/POWER OF ATTORNEY

Sir:

Enclosed for filing in the application are the following:

1. A Declaration/Power of Attorney executed by Dennis C. Liotta, Raymond F. Schinazi and Woo-Baeg Choi. ~~93270508~~
  2. An Assignment by Dennis C. Liotta, Raymond F. Schinazi and Woo-Baeg Choi to Emory University. ~~93270509~~
  3. Notice to File Missing Parts of Application - ~~93270510~~
- Filing Date Granted.

Checks in the amount of \$60.00 and \$130.00 are attached to cover the Assignment recordation fee and the Declaration surcharge, respectively. Please credit any overpayment or charge any other fees due in connection with this matter to our deposit

090 45 1-/92 7831153

1 581

60.00 EX

REC 6128 FRAM093

ASSIGNMENT

We, Dennis C. Liotta of 793 Post Road Way, Stone Mountain, Georgia 30088; Raymond F. Schinazi of 1524 Regency Walk Drive, Decatur, Georgia 30033; and Woo-Baeg Choi of 7 Regal Court, North Brunswick, New Jersey 08902, in consideration of One Dollar and other valuable consideration paid to us by Emory University, a Georgia corporation, having its principal place of business at 1380 S. Oxford Road, Atlanta, Georgia 30322, the receipt of which is hereby acknowledged, do hereby sell, assign and transfer unto said Emory University, its successors and assigns, the entire interest for the United States of America and all foreign countries including all rights of priority under the International Convention for the Protection of Industrial Property in a certain invention or improvement in "Antiviral Activity and Resolution of 2-Hydroxymethyl-5-(5-Fluorocytosin-1-YL)-1,3-Oxathiolane" described in the patent application filed February 12, 1992 in the United States Patent and Trademark Office, which is a continuation-in-part application of (1) U.S.S.N. 07/659,650 entitled "Method for the Synthesis, Compositions and Use of 2'-Deoxy-5-Fluoro-3'-Thiacytidine and Related Compounds", filed on February 22, 1991, by Dennis C. Liotta, Raymond F. Schinazi, and Woo-Baeg Choi, which is a continuation-in-part application of U.S.S.N. 07/473,318, entitled "Method and Compositions for the Synthesis of BCH-189 and Related Compounds", filed on February 1, 1990, by Dennis C. Liotta and Woo-Baeg Choi and, (2) a continuation-in-part of U.S.S.N. 07/736,089 entitled "Method of Resolution and Antiviral Activity of 1,3-Oxathiolane Nucleoside Enantiomers" filed on July 26, 1991, by Dennis C. Liotta, Raymond F. Schinazi, and Woo-Baeg Choi, which is a continuation-in-part of U.S.S.N. 07/659,760, referenced above and in all Letters Patent of the United States and all foreign countries which may or shall be granted on said invention, or any parts thereof, or on said application, or any divisional, continuing, reissue or other applications based in whole or in part thereon. And we agree, for ourselves and our executors and administrators, with said corporation and its successors and assigns but at its or their expense or charges, hereafter to execute all applications, amended specifications, deeds or other instruments, and to do all acts necessary or proper to secure the grant of Letters Patent in the United States and in all other countries to said corporation, with specifications and claims in such form as shall be approved by the counsel of said corporation and to vest and confirm in said corporation, its successors and assigns, the legal title to all such patents.

And we do hereby authorize and request the Commissioner of Patents and Trademarks of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said corporation, its successors and assigns.

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 1992.

\_\_\_\_\_  
Dennis C. Liotta

State of Georgia) ss.  
County of \_\_\_\_\_)

Then personally appeared the above named Dennis C. Liotta and acknowledged the foregoing instrument to be his free act and deed, before me, this \_\_\_\_\_ day of \_\_\_\_\_, 1992.

\_\_\_\_\_  
Notary Public

REC-128 MAR 09 1995

U.S.S.N. 07/831,153  
Filed: February 12, 1992  
Assignment

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_,  
1992.

\_\_\_\_\_  
Raymond F. Schinazi

State of Georgia) ss.  
County of \_\_\_\_\_)

Then personally appeared the above named Raymond F. Schinazi  
and acknowledged the foregoing instrument to be his free act and  
deed, before me, this \_\_\_\_\_ day of \_\_\_\_\_, 1992.

\_\_\_\_\_  
Notary Public

WITNESS my hand and seal this 24th day of March,  
1992.

Woo-Baeg Choi  
Woo-Baeg Choi

State of New Jersey) ss.  
County of Hudson)

Then personally appeared the above named Woo-Baeg Choi and  
acknowledged the foregoing instrument to be his free act and deed,  
before me, this 24th day of March, 1992.

Marilyn M. Harper  
Notary Public

MARILYN M. HARPER  
NOTARY PUBLIC OF NEW JERSEY  
My Commission Expires Aug. 1, 1994

RECORDED  
PATENT & TRADEMARK OFFICE

APR 10 92

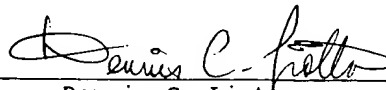
FILED 6128 MAR 10 1992

ASSIGNMENT

We, Dennis C. Liotta of 793 Post Road Way, Stone Mountain, Georgia 30088; Raymond F. Schinazi of 1524 Regency Walk Drive, Decatur, Georgia 30033; and Woo-Baeg Choi of 7 Regal Court, North Brunswick, New Jersey 08902, in consideration of One Dollar and other valuable consideration paid to us by Emory University, a Georgia corporation, having its principal place of business at 1380 S. Oxford Road, Atlanta, Georgia 30322, the receipt of which is hereby acknowledged, do hereby sell, assign and transfer unto said Emory University, its successors and assigns, the entire interest for the United States of America and all foreign countries including all rights of priority under the International Convention for the Protection of Industrial Property in a certain invention or improvement in "Antiviral Activity and Resolution of 2-Hydroxymethyl-5-(5-Fluorocytosin-1-YL)-1,3-Oxathiolane" described in the patent application filed February 12, 1992 in the United States Patent and Trademark Office, which is a continuation-in-part application of (1) U.S.S.N. 07/659,650 entitled "Method for the Synthesis, Compositions and Use of 2'-Deoxy-5-Fluoro-3'-Thiacytidine and Related Compounds", filed on February 22, 1991, by Dennis C. Liotta, Raymond F. Schinazi, and Woo-Baeg Choi, which is a continuation-in-part application of U.S.S.N. 07/473,318, entitled "Method and Compositions for the Synthesis of BCH-189 and Related Compounds", filed on February 1, 1990, by Dennis C. Liotta and Woo-Baeg Choi and, (2) a continuation-in-part of U.S.S.N. 07/736,089 entitled "Method of Resolution and Antiviral Activity of 1,3-Oxathiolane Nucleoside Enantiomers" filed on July 26, 1991, by Dennis C. Liotta, Raymond F. Schinazi, and Woo-Baeg Choi, which is a continuation-in-part of U.S.S.N. 07/659,760, referenced above and in all Letters Patent of the United States and all foreign countries which may or shall be granted on said invention, or any parts thereof, or on said application, or any divisional, continuing, reissue or other applications based in whole or in part thereon. And we agree, for ourselves and our executors and administrators, with said corporation and its successors and assigns but at its or their expense or charges, hereafter to execute all applications, amended specifications, deeds or other instruments, and to do all acts necessary or proper to secure the grant of Letters Patent in the United States and in all other countries to said corporation, with specifications and claims in such form as shall be approved by the counsel of said corporation and to vest and confirm in said corporation, its successors and assigns, the legal title to all such patents.

And we do hereby authorize and request the Commissioner of Patents and Trademarks of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said corporation, its successors and assigns.

WITNESS my hand and seal this 2<sup>nd</sup> day of April, 1992.

  
Dennis C. Liotta

State of Georgia) ss.  
County of DeKalb)

Then personally appeared the above named Dennis C. Liotta and acknowledged the foregoing instrument to be his free act and deed, before me, this 2 day of April, 1992.

  
Notary Public

Notary Public, DeKalb County, Georgia  
My Commission Expires Feb. 7, 1994

REC-6128 FRANKO 91

U.S.S.N. 07/831,153  
Filed: February 12, 1992  
Assignment

APR 10 92

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_,  
1992.

\_\_\_\_\_  
Raymond F. Schinazi

State of Georgia) ss.  
County of \_\_\_\_\_)

Then personally appeared the above named Raymond F. Schinazi  
and acknowledged the foregoing instrument to be his free act and  
deed, before me, this \_\_\_\_\_ day of \_\_\_\_\_, 1992.

\_\_\_\_\_  
Notary Public

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_,  
1992.

\_\_\_\_\_  
Woo-Baeg Choi

State of New Jersey) ss.  
County of \_\_\_\_\_)

Then personally appeared the above named Woo-Baeg Choi and  
acknowledged the foregoing instrument to be his free act and deed,  
before me, this \_\_\_\_\_ day of \_\_\_\_\_, 1992.

\_\_\_\_\_  
Notary Public

REC-6128 FIAN-092